In the Claims:

Claims Listings

64. (Currently Amended) A process for producing a long-term culture of immature dendritic cells, which process comprises:

~~(i) providing a population of embryonic stem cells;(ii)~~ culturing ~~the~~ embryonic stem cells in the presence ~~of a cytokine or combination of cytokines~~ **of a composition comprising IL-3**, which bring about differentiation of the embryonic stem cells into immature dendritic cells whose protracted longevity and capacity for self renewal produce a long-term culture of immature dendritic cells; and ~~(iii)~~ recovering immature dendritic cells from the culture, which immature dendritic cells are capable of maturation to an immunostimulatory phenotype.

65 through to 67 (Cancelled)

68. (Previously presented) The process according to claims 64, wherein the cytokine or combination of cytokines is or includes IL-3.

69. (Previously presented) The process according to claim 68, wherein a combination of cytokines including IL-3 and GM-CSF is used.

70. (Previously presented) The process according to claim 64, wherein the embryonic stem cells in (i) are in the form of embryoid bodies, generated by culturing purified embryonic stem cells in suspension for 14 days in the absence of recombinant leukemia inhibitory factor.

71. (Previously presented) The process according to claim 64, wherein the embryonic stem cells are genetically modified.

72. (Previously presented) The process of claim 71, wherein the cells express one or more heterologous gene(s).

73. (Previously presented) The process of claim 72, wherein the heterologous gene (s) encode a protein which has an immunomodulatory effect.

74. (Previously presented) The process of claim 73, wherein the protein is a cell surface receptor.

75. (Previously presented) The process of claim 74, wherein the protein is Fas-ligand.

76. (Previously presented) The process of claim 72, wherein the gene(s) express a dominant negative form of an endogenous protein.

77. (Previously presented) The process of claim 73, wherein the protein is an antigen target for the immune system, such as an autoantigen, a tumour antigen, or a foreign antigen.

78. (Previously presented) The process of claim 64, wherein the cell co-expresses two or more heterologous genes.

79. (Previously presented) The process of claim 78, wherein one of the heterologous genes prolongs the life-span of the cell.

80. (Previously presented) The process of claim 79, wherein the gene is an anti-apoptotic gene.

81. (Previously presented) The process of claim 78 or 79, wherein the gene encodes FLIP or bcl-2.

82. (Previously presented) The process of claim 64, in which one or more endogenous gene (s)have been inactivated.

83. (Previously presented) The process of claim 82, wherein the inactivated endogenous gene (s) comprise any of: B7-1, IL-12, the p35 or p40 subunit of IL-12.

84. (Previously presented) The process of claim 71, wherein the embryonic stem cells are transfected with at least one gene which is expressed in the dendritic cells.

85. (Previously presented) The process of claim 84, wherein the gene is under the control of a promoter which initiates or upregulates gene expression on maturation of dendritic cells.

86. (Previously presented) The process of claim 84 or claim 85, wherein the gene is a reporter gene which expresses a detectable product in the dendritic cells.

87. (Previously presented) The process of claim 86, wherein the gene encodes a fluorescent product.

88. (Previously presented) The process of claim 87, wherein the gene is the GFP gene.

89. (Previously presented) The process of claim 71, wherein the ES cells are genetically modified so as to inactivate at least one copy of at least one gene.

90. (Previously presented) The process of claim 64, wherein the recovered immature dendritic cells are substantially pure.

91. (Previously presented) The process of claim 64, wherein the cells are lymphoid.

92. (Previously presented) The process of claim 64, wherein the cells are myeloid.

93. (Previously presented) The process of claim 64, wherein the cells are human.

94. (Previously presented) The process of claim 64, wherein the ES cells are derived from a mouse strain such as CBA/Ca or C57BI/6.

95. (Previously presented) The process of claim 64, wherein the ES cells are from the ESF116 cell line.

96 through to 104 (Cancelled).

105. (Previously presented) The process of claim 79, wherein the gene encodes FLIP or bcl-2.

106. (Previously presented) The process of claim 85, wherein the gene is a reporter gene which expresses detectable product in the dendritic cells.

107. (Previously presented) The process of claim 106, wherein the gene encodes a fluorescent product.

108. (Previously presented) The process of claim 107, wherein the gene is the GFP gene.

109. (Cancelled).

110. (New) The method of claim 64, wherein said composition further comprises GM-CSF